Press Release
46th Cairo Climate Talks
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"Biomass in Egypt: Win or Waste?"

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Millions of tons of biomass are inefficiently managed in Egypt, thereby casting away numerous opportunities for economic and environmental benefits. Biomass can be used to produce biofuel such as biogas that could be utilized to generate bioenergy in terms of heat and electricity and high quality organic fertilizer. As promising as this renewable energy resource is, bioenergy could significantly add to Egypt's energy mix. While its global share is already ten percent, it is only one percent in Egypt, thereby leaving a vast potential untapped.

In an effort to utilize Egypt's biomass usage to generate bioenergy, the Ministry of Environment in cooperation with the Ministry of Electricity has submitted to the Cabinet of Ministries all the necessary studies for the feed-in tariff for electricity generated from waste. In return the Cabinet of Ministries has issued a decree in 2015 to form a ministerial committee to study all electricity from waste projects. A feed-in tariff will allow the private sector to feed electricity generated by any kind of waste to the grid in exchange for money. Also the Ministry of Environment in cooperation with the United Nations Development Programme (UNDP) has taken an off-grid approach to biogas production under the 'Bioenergy for Sustainable Rural Development' project, which founded 30 startups that built 1.300 small-scale biogas units.

"Germany has initiated a process called "Energiewende" several years ago" announced H.E. Julius Georg Luy, Ambassador of the Federal Republic of Germany to Egypt, at the beginning of his speech for the 46th Cairo Climate Talk

named ‘Biomass in Egypt: Win or Waste?’. “It amounts to a radical transformation of our energy sector. By 2050, we want to cover 80% of our electricity demand with renewable energies.” Afterwards H.E. elaborated further on the importance and versatility of biomass as a renewable energy source in Germany with its usage in solid, liquid and gaseous form for the generation of electricity and heat as well as for the production of biofuels. “Our biomass action plan, which was introduced in 2009, foresees the promotion of the further development of procedures and technologies that guarantee the efficient, safe, economical and sustainable generation of electricity and heat from biomass as well as from biogenic residues and waste”, he commented. Last but not least, H.E. encouraged the bioenergy investment in Egypt and expressed his conviction of the biomass potential of the country, especially when looking at the large amounts of agricultural waste being produced every year.

“It is very interesting to have dialogue and what is even more interesting is to shift this dialogue into action” elaborated H.E. Dr. Khaled Fahmy, Egyptian Minister of Environment, while emphasizing the importance of the German Egyptian cooperation to support NGOs working on bioenergy in Egypt. “We should have a vision and a well coordinated plan between all the concerned ministries for the waste management incentivizing mechanisms in Egypt; one of which is the feed-in tariff” explained Dr. Fahmy right before he gave further insight about the long awaited waste-to-energy feed-in tariff: “After a nationwide study, we have proposed the feed-in tariff to the Cabinet of Ministries and got nine ministries on board for an out-put based tariff. The final purchasing price has not been announced yet, but to give you some figures, we are targeting a 13% internal rate of return over ten years, a payback period of four years, a return on investment of 150% and a power purchase agreement (PPA) that can reach up till 20 years. This is all very profitable and attractive to investors”.

“There is a lot of diverse information on how much Egypt produces biomass per year. We have been going center by center to know exactly how much biomass or crop byproducts is produced. Our conservative conclusion is 19 million tons per year“, stated Prof. Dr. Eid Megeed, Director of the Technology Transfer Office at the Agriculture Research Center (ARC) of Egypt, and then he commented, “when planning for a project, you must base your calculations on the conservative data to always guarantee the continuity of supply.” Afterwards, he further explained the challenges facing bioenergy actors especially with the inconsistency of supply: “In the same village, we can have a farmer growing only a certain crop on a certain

number of acres and the neighboring farmer growing a different crop on a different number of acres. So if you want to have a business, you have to go far away to places that have specific intensive crops that fit your technology." Then he addressed the government's role in setting the right environment to increase the demand for bioenergy projects, "Once the demand increases, there will be an economic incentive for the farmers to collect their crops and transport them to the project location." And then he added that the center wants to make the biomass data as accessible as possible to encourage more businesses to grow: "Our study will be available to the public very soon on our website and we will have a 'Biomass map' that locates all biomass resources in Egypt."

"We chose the most proper technologies that fit the Egyptian conditions and rural areas by helping farmers replace their liquefied petroleum gas with biogas and their chemical fertilizers with organic fertilizers, and we will be reducing our greenhouse gas emissions at the same time", explained Engineer Ahmed Medhat, Executive Director of the Association for Bioenergy for Sustainable Rural Development. "In cooperation with the Egyptian Environmental Affairs Agency, UNDP and the Global Environment Facility, we were able to found 30 startups that built 1.300 biogas units in 18 governorates." Then he emphasized the importance of capacity building trainings, especially with a market as a fresh as the Egyptian biomass market: "We consider this project successful and that it had a positive impact on the farmers since a lot more have shown interest in having biogas units as well. Now the new challenge is to make those projects more sustainable, which is why we founded the association."

"We are a group of waste experts who saw a very challenging issue in Egypt", started off Dr. Hatem El Gamal, Chairman of Empower Group. "We kick-started our 100 kilowatts biogas project in Moshtohor village and now we have a 6 megawatts project in the pipeline in Kafr El Sheikh. In the 100 kilowatts project, we worked with municipal solid waste, but then we realized that the supply was fluctuating so we had to move to something more sustainable. We found that sludge is relatively cheaper and more secure. In order for the project to succeed, we have to choose the cheapest way of generating energy from waste and it has to be below the average cost of generating energy in the country." Despite the complicated and rather irritating procedure of getting a PPA for a waste-to-energy feed-in tariff, Empower team were able to get the PPA for their Kafr El Sheikh project so that they can sell electricity generated from waste to the Egyptian

electricity grid. “The problem is that no one owns the waste”, Dr. El Gamal added. “We had to go to nine authorities and get 20 approvals from 38 committees. We were finally able to come up with a business model that could manage the waste in an efficient way and we signed our PPA.” He further noted that one of the keys to a successful business model is to always have an added value from a byproduct. For example, organic fertilizers can add a lot of in cash to the project. Then he positively expressed that a lot of progress has been made since 2014 and that a manual for PPA acquisition is being developed in order to make the process easier for future companies and investors.

“Germany is the number one country with biogas digesters and it has the highest feed-in tariff so it’s definitely a key to their success”, reasoned Mr. Tawfik El-Kheshen, Head of the National Solid Waste Management Programme at the Gesellschaft für Internationale Zusammenarbeit (GIZ), in support of the feed-in tariff as a financial incentivizing mechanism for waste management solutions in Egypt. Giving an overview on the fuel prices, he explained that with the degradation of the Egyptian Pound, alternative energies have a chance to compete in the market when compared to high fuel prices. He further suggested picking the low hanging fruits of waste-to-energy modeling by bringing in an example of the use of alternative fuels in the cement industry: “In cement factories, you don’t need to build anything. You only need to see how you can link things together. I see waste becoming very economically attractive for cement factories in the next years.” Mr. El Kheshen then suggested that people look at the biomass from a socio-economic perspective: “Small biomass businesses create jobs in villages. If villagers are given the technology to utilize their biomass resource to create jobs and a promising future, this might help solve the city immigration problem.”

**Background Information:**

The Cairo Climate Talks are conceived, organized and hosted as a cooperation between the German Embassy in Cairo, the Egyptian Ministry of Environment, the German Academic Exchange Service (DAAD) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). For more information, please visit our website or contact info@cairoclimatetalks.net.